EXHIBIT C

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF OHIO
EASTERN DIVISION

MICHAEL GONIDAKIS et al.,

        Plaintiffs,

THE OHIO ORGANIZING
COLLABORATIVE, COUNCIL ON
AMERICAN-ISLAMIC RELATIONS, OHIO,
OHIO ENVIRONMENTAL COUNCIL,
SAMUEL GRESHAM JR., AHMAD
ABOUKAR, MIKAYLA LEE, PRENTISS
HANEY, PIERRETTE TALLEY, and
CRYSTAL BRYANT,

        Intervenor-Plaintiffs,

v.

FRANK LAROSE, in his official capacity,

        Defendant.

Case No. 2:22-cv-00773

Circuit Judge Amul R. Thapar

Chief Judge Algenon L. Marbley

Judge Benjamin J. Beaton

Magistrate Judge Elizabeth Preston Deavers

DECLARATION OF MEGAN A. GALL, PhD

BACKGROUND & QUALIFICATIONS

1.   I am a Principal at Blockwell Consulting, LLC ("Blockwell"). My business address is 833 Edgewood Drive, Charleston, WV 25302.

2.   I have experience conducting redistricting for the U.S. Department of Justice, national non-profit law firms, private law firms, and community groups. For this work, I draw new district boundaries, assess compliance with state and federal constitutions, and assess malapportionment. I've done redistricting work in several states including, but not limited to, Alabama, Mississippi, North Carolina, South Dakota, North Dakota, Arizona, Montana, Alaska, Georgia, and Texas. I've also conducted redistricting for many counties and local jurisdictions. I conduct racially polarized voting (RPV) analyses for VRA compliance matters and to inform district line drawing. I previously worked as the sole RPV expert for the 2020 California Citizen's Redistricting Committee. I also conducted RPV analyses for the U.S. Department of Justice, the NAACP LDF, the Lawyers' Committee for Civil Rights Under Law, private law firms, and county and local jurisdictions. I conducted distance analyses for VRA Section 2 vote denial investigations by measuring average travel distance and time for voters to access voting sites or resources. During my career, I have conducted extensive voting rights policy research for academic publications and national non-profits. I am certified by the GIS Certification Institute as a GIS Professional, which means I am certified a geographic information science practioner. A copy of my curriculum vitae is attached as **Exhibit 1**.

3.   I also work as a quantitative geographer and political scientist doing research in voting rights, criminal justice, education, and housing. I have taught university courses in political geography, GIS, and cartography. I was a guest lecturer at American University Washington College of Law and Howard University School of Law. I have also taught

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workshops for practitioners in mapping, redistricting, and RPV. I hold a PhD from the State University of New York at Buffalo in Political Science with a focus on American politics and a Master's Degree from the University of Denver in Geographic Information Science.

4.   I have substantial experience conducting demographic analyses using U.S. Census Bureau data. I also specialize in administrative electoral data. I have personally facilitated a wide range of research on voting rights policy including redistricting, election administration, legal disparate impact, and policy impact. I am familiar with and have studied Article XI of the Ohio Constitution and the Fourteenth Amendment to the United States Constitution.

5.   Blockwell, my firm, is being compensated for my services in this matter at my standard rate of $250 per hour. No part of my compensation or Blockwell's compensation depends on the outcome of this litigation.

DOCUMENTS REVIEWED

6.   As part of my work, I reviewed the Intervenor-Plaintiffs' Complaint in this matter, Article XI of the Ohio Constitution, the Fourteenth Amendment to the United States Constitution, statements and dissents released by the Ohio Redistricting Commission pursuant to Section 8(C)(2) of Article XI of the Ohio Constitution at the time it enacted each General Assembly plan, and the three opinions of the Ohio Supreme Court regarding the drawing of an Ohio General Assembly district plan for the 2020 redistricting cycle: *League of Women Voters of Ohio v. Ohio Redistricting Comm.*, No. 2021-1193 (Ohio Sept. 23, 2021), Slip Opinion No. 2022-Ohio-65, Slip Opinion No. 2022-Ohio-342, and Slip Opinion No. 2022-Ohio-789.

ASSIGNMENT & SUMMARY OF OPINIONS

7.   I have been asked by the Ohio Organizing Collaborative Intervenor-Plaintiffs to analyze two General Assembly district plans to determine whether each plan complies with line-

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drawing requirements of the Ohio Constitution, Article XI, Sections 3–4. The first plan was

adopted during the previous redistricting cycle by the Ohio Apportionment Board, which was

"the body then responsible for drawing Ohio's legislative-district maps[,]"[1] on September 30,

2011 ("2011 Plan").[2] The second plan was submitted to the Ohio Redistricting Commission

("Commission") on March 28, 2022 by two independent map drawers hired by the Commission,

Douglas Johnson and Michael McDonald ("Johnson/McDonald Plan"). The 2011 Plan for both

chambers are available for download on the U.S. Census Bureau website, and block equivalency

files are attached as **Exhibit 2** and **Exhibit 3** (manually submitted).[3] The Johnson/McDonald

Plans are available for download on the Commission's website.[4]

8.   I was also asked to modify the Johnson/McDonald Plan to the extent that I found

any instances where the plan did not comply with Sections 3 or 4, and to prepare a revised plan

(the "Revised Johnson/McDonald Plan") that fully complied with Sections 3 and 4.

9.   To conduct the Section 3 and 4 analyses, I rely on publicly available data and GIS

software including Maptitude for Redistricting[5] and QGIS.

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[1] Slip Opinion No. 2022-Ohio-65, ¶ 340.

[2] These plans both include maps for the state House and Senate. References below to these individual maps will retain this nomenclature, e.g., "Original House," "First Revised Senate" and "Second Revised House".

[3] State House Districts:
https://www2.census.gov/geo/tiger/TIGER2021/SLDL/tl_2021_39_sldl.zip; State Senate Districts https://www2.census.gov/geo/tiger/TIGER2021/SLDU/tl_2021_39_sldu.zip

[4] https://www.redistricting.ohio.gov/maps.

[5] Maptitude for Redistricting is created by the Caliper Corporation and is a full-featured mapping and GIS software that has been an industry leader in redistricting. From my professional experience, it is the go-to technical tool that combines demographic population data, geographic shapefiles, political data, among other desired inputs. From my understanding and observation, official map-drawing by Ohio Redistricting Commission staff and by Dr. Johnson and Dr. McDonald were done using Maptitude.

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10.   I have also been asked to analyze the 2011 Plan and the Revised

Johnson/McDonald Plan to determine whether each plan reflects equipopulous districts when

applied to Ohio's current demographic configuration, i.e., whether the Plans are malapportioned.

11.   To conduct the malapportionment analysis, I rely on 2020 U.S. Census Bureau

data from the PL 94-171 redistricting files as procured by the Ohio University Common and

Unified Redistricting Database. Demographic data reflect the total population from table P1 and

voting age populations from P4 of the PL 94-171 files.

12.   Overall, the 2011 Plan does not comply with the Ohio and federal constitutions. If

utilized in 2022, the 2011 Plan would result in malapportioned districts. Additionally, the 2011

Plan violates many of the requirements in Article XI, Sections 3 and 4. The Johnson/McDonald

Plan and subsequently the Revised Johnson/McDonald Plan, are not malapportioned. The Revised

Johnson/McDonald Plan corrects for very small violations of Article XI, Sections 3 in the

Johnson/McDonald Plan. The revisions have nominal impacts to the district boundaries, district

deviations, and maximum plan deviations.

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13.   The remainder of this report discusses my general understanding of the

background in this matter, the research I conducted, and provides a detailed discussion of the

results of my analyses.

<p align="center">**BACKGROUND**</p>

14.   The Ohio Constitution requires that map drawers use entire counties, municipal

corporations, and townships as the foundation for district lines, to the extent possible. Counties

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with populations greater than the ideal district population must spill over into a single additional

district. The map drawer must also strive to not split counties more than once, and to not split

more than one municipality per district. *See generally* Ohio Constitution, Article XI, Sections 3.

Given map drawers must comply with all of these rules, the maximum deviation among districts

permitted under Ohio law is 10 percent. *See* Ohio Constitution, Article XI, Section3(B)(1) (noting

that "[i]n no event shall any district contain a population of less than ninety-five percent nor more

than one hundred five per cent of the applicable ratio of representation.").

15. Similarly, the Fourteenth Amendment prevents map drawers from producing

malapportioned maps. More specifically, it prohibits a state from "deny[ing] to any person within

its jurisdiction the equal protection of the laws." U.S. CONST. amed. XIV, § 1. This provision

therefore "requires that the seats in both houses of a bicameral state legislature [] be apportioned

on a population basis." *Reynolds v. Sims*, 377 U.S. 533, 568 (1964).

16. Where the maximum population deviation in a map is greater than 10 percent, the

deviation is presumptively impermissible. *See Evenwel v. Abbott*, 578 U.S. 54, 60 (2016).

ANALYSIS AND OPINIONS

I. Line-Drawing Analysis: Whether the 2011 and Johnson/McDonald Plans Comply with Sections 3 and 4 of Article XI

17. In order to evaluate compliance, I first produced population statistics by district.

Maptitude software allows for this procedure as a basic function. I then examined the district

deviations to assess compliance with the +/- 5 percent deviation requirement. I calculated the

maximum plan deviation (the absolute value of the district with the lowest deviation plus the

value of the district with the highest deviation) to check compliance with the requirement for a

maximum plan deviation of no more than 10 percent. I used a built-in function in Maptitude to

check for non-contiguous areas and I did a visual inspection to assess the plans for boundaries

with a nonintersecting continuous line. It is not possible to fully assess Section 3(C)(1) detailing

the order in which the map drawers must construct and name districts. The rule was non-

applicable for the 2011 Plan. For the Johnson/McDonald Plan, I isolated the counties with the

highest population and assessed whether they were districted and labeled sequentially and before

counties with smaller populations. Assessing compliance with Section 3(C)(3) and 3(D) was also

a multi-step process. In order, I ran an algorithm to isolate counties, cities, villages, and then

townships that overlap with district boundaries. I then visually inspected those overlapping

jurisdictions to assess whether the split counted as an official split under specifications outlined in

Section 3(D). After individually inspecting splits for those four geographies, I returned to the

official splits for the four geographies and counted the number of splits per district.

18.   The Johnson/McDonald Plan complies with nearly all of the line-drawing

requirements of the Ohio Constitution. *See* Ohio Constitution, Article XI, Sections 3 and 4. To the

extent there are any violations, I have identified them below and detail the ways I addressed them

in the Revised Johnson-McDonald Plan. As those violations are small, I conclude that the

Johnson/McDonald Plan is materially complaint with the Ohio Constitution.

19.   The 2011 Plan, on the other hand, contains an extensive number of violations and

so is not compliant, let alone materially, with the Ohio Constitution. I will begin with a discussion

of the 2011 Plan.

a.   2011 Plan

20.   The 2011 Plan does not comply with Section 3(B)(1) of Article XI, which, as

noted, requires that a General Assembly district plan contain a maximum deviation of less than 10

percent. Using 2020 demographic data, the districts in the 2011 Plan range from 19.69 percent to -

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14.54 percent for a maximum deviation range of 34.23 percent. The 2011 Plan is clearly

malapportioned.

21.   Furthermore, the 2011 Plan is not in compliance with Section 3(D)(3). Under

Section 3(D)(3) of Article XI, "Where the requirements of divisions (B), (C), and (D) of this

section cannot feasibly be attained by forming a representative district from whole municipal

corporations and townships, not more than one municipal corporation or township may be split

per representative district." Ohio Constitution, Article XI, Section 3(D)(3) of Article XI. Districts

cannot be drawn such that they cross more than one city, village, or township boundary.

Functionally, this means that most cities, villages, and townships in Ohio are kept intact in single

house or senate districts and splits of these geographies are minimized.

22.   The Section 3(D)(3) violations stem from the fact that Section 3 was not in place

when the 2011 Plan was drawn. As such, splits of municipalities are not minimized in the 2011

Plan. For example, in Butler County, Middletown city is split by the 2011 Plan but easily

accommodated and kept intact in the Johnson/McDonald Plan.

    b.   Johnson/McDonald Plan

23.   I have identified three minor compliance issues in the Johnson/McDonald Plan,

all of which are violations of Section 3(D)(3). I have created a revised version of the

Johnson/McDonald Plan that corrects for these issues, and describe those violations and fixes as

follows:

24.   Revision 1: Sunbury Village and Delaware City were split between Districts 67

and 68, which represents more than one municipality split per district. Article XI, Section 3(D)(3)

requires, to the extent possible, that districts split no more than one municipal corporation or

township. To revise this, I moved the remainder of Delaware City out of District 67 and into

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District 68. The revision reallocated 1,357 from District 67 into District 68. Delaware City is now completely contained in District 68. Sunbury Village is now the only municipality split in Districts 67 and 68. Under the Johnson/McDonald Plan, the deviation is -1.97 percent for District 67 and -4.79 percent for District 68. Under the Revised Johnson/McDonald Plan, the deviation is -3.11 for District 67 and -3.65 percent for District 68.

25.   Revision 2: District 82 had two split villages including Weston village and Jerry City village. Again, this violates Section 3(D)(3) by including more than one split municipality in the district. For Weston village, I moved one Census block with zero population from District 60 into District 82 in order to keep Weston village whole. For Jerry City village, I moved nine Census blocks with 229 people from District 60 into District 82 to keep Jerry City village whole. Under the Johnson/McDonald Plan, the deviation is 3.39 percent for District 60 and -4.91 percent for District 82. Under the Revised Johnson/McDonald Plan, the deviation is 3.2 percent for District 60 and -4.72 percent for District 82.

26.   Revision 3: District 9 splits Franklin and Jackson townships. Again, this violates Section 3(D)(3) by including more than one split township or municipality in the district. These townships are in Franklin County which is the most populous state in Ohio and therefore contains several districts. Non-contiguous city and township boundaries make redistricting in Franklin County more difficult. Therefore, it was only practicable to substantively correct for the split to Jackson Township. I moved 81 people from District 10 to District 9 to keep Jackson Township whole. Franklin Township is not a contiguous geography and as a result there are portions that are not kept in the same district as the rest of the township in the Revised Johnson/McDonald Plan. However, some sections of Franklin Township were contiguous with District 9. I reallocated those areas from District 10 to District 9, and those areas included 1,067 people. To create more

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compact districts along the boundary, I moved two additional Census blocks from District 10 to District 9. The two blocks contained 43 people. Under the Johnson/McDonald Plan, the deviation is -4.63 percent for District 9 and -3.30 percent for District 10. Under the Revised Johnson/McDonald Plan, the deviation is -3.63 percent for District 9 and -4.30 percent for District 10.

27.   A pdf image of the Revised Johnson/McDonald House Plan is attached as **Exhibit 4**, and a block equivalency file in excel format is attached as **Exhibit 5** (manually submitted).

28.   I did not need to revise the senate districts in the Revised Johnson/McDonald Plan. Article XI, Section 4(A) requires that senate districts be composed of three contiguous house districts. The requirement creates a situation in which some parts of each house district boundary lie within the senate districts while other parts of each house district boundary share the senate district boundary. While I did make small changes to some of the house district boundaries, none of the senate district boundaries in the original Johnson/McDonald Plan were impacted.

29.   A pdf image of the Revised Johnson/McDonald Senate Plan is attached as **Exhibit 6**, and a block equivalency file in excel format is attached as **Exhibit 7** (manually submitted). As noted above, the Revised Johnson/McDonald Senate Plan is identical to the original Johnson/McDonald Senate Plan.

II.   Malapportionment Analysis: Whether the 2011 and Johnson/McDonald Plans Comply with the Fourteenth Amendment of the United States Constitution

a.   The 2011 Plan

30.   In order to assess malapportionment, I first calculate the ideal district population. To do that calculation, I take the total population in the state and divide by the number of districts.

That number then becomes the ideal population for each district in the state and the benchmark

from which district deviation and overall plan deviation are calculated.

31.   According to the 2010 Census, Ohio had a population of 11,536,504. Therefore, a

decade ago, the ideal population of each of Ohio's 99 state House districts (*i.e.*, the State's total

population divided by the number of districts) was 116,530 persons. Similarly, the ideal

population for each of Ohio's 33 state Senate districts was 349,591 persons.

32.   The results of the 2020 Census report that Ohio's resident population as of April

2020 increased by 2.28 percent, totaling 11,799,448 persons. Consequently, the ideal population

for each of Ohio's 99 state House districts increased to 119,186 while the ideal population for

each of Ohio's 33 state Senate districts increased to 357,560.

33.   In the past decade, Ohio's population has shifted significantly, which skews the

current legislative districts away from population equality. **Table 1** below, which was generated

from Census data, reveals where populations for each of Ohio's House districts drawn in 2011

now stands as of the 2020 Census. An excel file containing the information provided in Table 1 is

attached as **Exhibit 8** (manually submitted).

Table 1: 2011 House Plan Population Deviation

District	Total Population	Deviation	% Deviation
1	116,894	-2,292	-1.92%
2	124,936	5,750	4.82%
3	132,248	13,062	10.96%
4	102,206	-16,980	-14.25%
5	101,877	-17,309	-14.52%
6	123,329	4,143	3.48%
7	119,562	376	0.32%
8	116,600	-2,586	-2.17%
9	116,195	-2,991	-2.51%
10	112,385	-6,801	-5.71%
11	106,341	-12,845	-10.78%

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12	114,399	-4,787	-4.02%
13	111,364	-7,822	-6.56%
14	111,504	-7,682	-6.45%
15	111,375	-7,811	-6.55%
16	121,763	2,577	2.16%
17	116,012	-3,174	-2.66%
18	136,039	16,853	14.14%
19	133,846	14,660	12.30%
20	139,823	20,637	17.32%
21	139,857	20,671	17.34%
22	133,768	14,582	12.23%
23	136,182	16,996	14.26%
24	126,074	6,888	5.78%
25	131,643	12,457	10.45%
26	130,563	11,377	9.55%
27	116,574	-2,612	-2.19%
28	125,471	6,285	5.27%
29	118,485	-701	-0.59%
30	113,456	-5,730	-4.81%
31	117,386	-1,800	-1.51%
32	125,392	6,206	5.21%
33	113,875	-5,311	-4.46%
34	108,211	-10,975	-9.21%
35	108,971	-10,215	-8.57%
36	118,727	-459	-0.39%
37	122,719	3,533	2.96%
38	113,686	-5,500	-4.61%
39	107,022	-12,164	-10.21%
40	119,235	49	0.04%
41	118,659	-527	-0.44%
42	117,850	-1,336	-1.12%
43	115,542	-3,644	-3.06%
44	108,500	-10,686	-8.97%
45	113,664	-5,522	-4.63%
46	115,705	-3,481	-2.92%
47	121,689	2,503	2.10%
48	114,569	-4,617	-3.87%
49	116,839	-2,347	-1.97%
50	111,559	-7,627	-6.40%
51	117,607	-1,579	-1.32%
52	130,619	11,433	9.59%
53	123,220	4,034	3.38%
54	131,917	12,731	10.68%

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55	122,869	3,683	3.09%
56	121,855	2,669	2.24%
57	126,805	7,619	6.39%
58	112,969	-6,217	-5.22%
59	115,645	-3,541	-2.97%
60	113,457	-5,729	-4.81%
61	119,146	-40	-0.03%
62	129,331	10,145	8.51%
63	107,384	-11,802	-9.90%
64	106,108	-13,078	-10.97%
65	129,051	9,865	8.28%
66	123,226	4,040	3.39%
67	142,650	23,464	19.69%
68	134,195	15,009	12.59%
69	126,098	6,912	5.80%
70	121,919	2,733	2.29%
71	127,215	8,029	6.74%
72	123,324	4,138	3.47%
73	117,889	-1,297	-1.09%
74	113,207	-5,979	-5.02%
75	118,689	-497	-0.42%
76	117,739	-1,447	-1.21%
77	125,790	6,604	5.54%
78	121,777	2,591	2.17%
79	116,695	-2,491	-2.09%
80	127,554	8,368	7.02%
81	113,649	-5,537	-4.65%
82	109,580	-9,606	-8.06%
83	111,822	-7,364	-6.18%
84	116,562	-2,624	-2.20%
85	108,820	-10,366	-8.70%
86	121,437	2,251	1.89%
87	109,504	-9,682	-8.12%
88	110,042	-9,144	-7.67%
89	115,986	-3,200	-2.68%
90	114,761	-4,425	-3.71%
91	119,931	745	0.63%
92	122,375	3,189	2.68%
93	115,108	-4,078	-3.42%
94	116,478	-2,708	-2.27%
95	115,360	-3,826	-3.21%
96	113,512	-5,674	-4.76%
97	116,795	-2,391	-2.01%

98	124,386	5,200	4.36%
99	106,819	-12,367	-10.38%

34.   **Table 1** shows that, applying 2020 Census data, the maximum deviation among state House districts for the 2011 Plan is 34.23 percent. In total, 45 of the 99 state House districts for the 2011 Plan are beyond acceptable deviations with 22 districts below -5 percent deviation and 23 districts above 5 percent deviation.

35.   **Table 2** below shows the same information for Ohio's Senate districts. An excel file containing the information provided in Table 2 is attached as **Exhibit 9** (manually submitted).

Table 2: 2011 Senate Plan Population Deviation

District	Total Population	Deviation	% Deviation
1	335,051	-22,508	-6.29%
2	369,923	12,364	3.46%
3	389,681	32,122	8.98%
4	371,446	13,887	3.88%
5	350,118	-7,441	-2.08%
6	355,744	-1,815	-0.51%
7	377,822	20,263	5.67%
8	357,412	-147	-0.04%
9	356,653	-906	-0.25%
10	347,791	-9,768	-2.73%
11	337,869	-19,690	-5.51%
12	327,588	-29,971	-8.38%
13	371,529	13,970	3.91%
14	367,038	9,479	2.65%
15	398,245	40,686	11.38%
16	402,113	44,554	12.46%
17	357,414	-145	-0.04%
18	355,574	-1,985	-0.56%
19	410,613	53,054	14.84%
20	364,362	6,803	1.90%
21	334,921	-22,638	-6.33%
22	372,953	15,394	4.31%
23	334,243	-23,316	-6.52%
24	364,654	7,095	1.98%

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25	344,456	-13,103	-3.66%
26	340,983	-16,576	-4.64%
27	353,299	-4,260	-1.19%
28	335,909	-21,650	-6.05%
29	342,967	-14,592	-4.08%
30	345,350	-12,209	-3.41%
31	374,925	17,366	4.86%
32	320,311	-37,248	-10.42%
33	330,491	-27,068	-7.57%

36.   **Table 2** shows that, using 2020 Census data, the maximum deviation among state Senate districts for the 2011 Plan is 25.26 percent. Total, 13 of the 33 state Senate districts for the 2011 Plan are beyond acceptable deviations with 8 districts below -5 percent deviation and 5 districts above 5 percent deviation.

37.   In light of these population shifts, the 2011 legislative district configurations are malapportioned. If utilized in any future election, these configurations would dilute the strength of Petitioners' votes in legislative elections since they live in districts that are significantly larger than those districts in which other voters reside.

38.   Petitioner Samuel Gresham Jr. lives at 255 Old Trail Drive, Columbus, OH 43213, which is in House district 26 and Senate district 15 in the 2011 Plan. Based on 2020 census data, both House district 26 and Senate district 16 are overpopulated by more than 5 percent.

39.   Petitioner Ahmad Aboukar lives at 5019 Noor Park Circle, Dublin, OH 43016, which is in House district 24 and Senate district 16 in the 2011 Plan. Based on 2020 census data, both House district 24 and Senate district 16 are overpopulated by more than 5 percent.

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40.   Petitioner Mikayla Lee lives at 111 Latta Avenue, Unit C, Columbus, OH 43215, which is in House district 18 and Senate district 15 in the 2011 Plan. Based on 2020 census data, both House district 18 and Senate district 15 are overpopulated by more than 5 percent.

41.   Petitioner Prentiss Haney lives at 918 Windsor Street, Cincinnati, OH 45206, which is in House district 32 and Senate district 9 in the 2011 Plan. Based on 2020 census data, House district 32 is overpopulated by more than 5 percent.

c.   **The Revised Johnson/McDonald Plan**

42.   **Table 3** below, which was generated from Census data, reveals how the Revised Johnson/McDonald House Plan, unlike the 2011 House Plan, is complaint with equal-population principles. An excel file containing the information provided in Table 3 is attached as **Exhibit 10** (manually submitted).

Table 3: Revised Johnson/McDonald Plan House District Statistics

District	Population	Deviation	% Deviation
1	113,804	-5,382	-4.52%
2	115,690	-3,496	-2.93%
3	114,825	-4,361	-3.66%
4	115,779	-3,407	-2.86%
5	115,549	-3,637	-3.05%
6	114,055	-5,131	-4.31%
7	116,576	-2,610	-2.19%
8	115,486	-3,700	-3.10%
9	114,854	-4,332	-3.63%
10	114,058	-5,128	-4.30%
11	121,088	1,902	1.60%
12	114,827	-4,359	-3.66%
13	122,306	3,120	2.62%
14	124,454	5,268	4.42%
15	125,091	5,905	4.95%
16	124,926	5,740	4.82%
17	125,074	5,888	4.94%
18	125,129	5,943	4.99%

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19	125,139	5,953	4.99%
20	125,092	5,906	4.96%
21	125,124	5,938	4.98%
22	125,102	5,916	4.96%
23	124,875	5,689	4.77%
24	125,108	5,922	4.97%
25	115,863	-3,323	-2.79%
26	115,993	-3,193	-2.68%
27	114,191	-4,995	-4.19%
28	122,081	2,895	2.43%
29	117,150	-2,036	-1.71%
30	120,781	1,595	1.34%
31	124,580	5,394	4.53%
32	122,703	3,517	2.95%
33	117,892	-1,294	-1.09%
34	117,660	-1,526	-1.28%
35	125,086	5,900	4.95%
36	117,347	-1,839	-1.54%
37	122,537	3,351	2.81%
38	117,451	-1,735	-1.46%
39	113,301	-5,885	-4.94%
40	113,798	-5,388	-4.52%
41	124,372	5,186	4.35%
42	113,816	-5,370	-4.51%
43	121,721	2,535	2.13%
44	123,297	4,111	3.45%
45	113,289	-5,897	-4.95%
46	113,336	-5,850	-4.91%
47	113,903	-5,283	-4.43%
48	121,556	2,370	1.99%
49	124,300	5,114	4.29%
50	116,372	-2,814	-2.36%
51	116,894	-2,292	-1.92%
52	119,984	798	0.67%
53	125,055	5,869	4.92%
54	119,560	374	0.31%
55	114,688	-4,498	-3.77%
56	120,933	1,747	1.47%
57	121,180	1,994	1.67%
58	120,396	1,210	1.02%
59	122,877	3,691	3.10%
60	122,994	3,808	3.20%

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61	124,936	5,750	4.82%
62	122,936	3,750	3.15%
63	119,401	215	0.18%
64	117,427	-1,759	-1.48%
65	115,369	-3,817	-3.20%
66	113,245	-5,941	-4.98%
67	115,485	-3,701	-3.11%
68	114,836	-4,350	-3.65%
69	121,444	2,258	1.89%
70	113,556	-5,630	-4.72%
71	118,762	-424	-0.36%
72	124,312	5,126	4.30%
73	124,078	4,892	4.10%
74	123,119	3,933	3.30%
75	124,970	5,784	4.85%
76	119,415	229	0.19%
77	115,502	-3,684	-3.09%
78	114,560	-4,626	-3.88%
79	121,691	2,505	2.10%
80	124,162	4,976	4.18%
81	114,218	-4,968	-4.17%
82	113,563	-5,623	-4.72%
83	115,655	-3,531	-2.96%
84	120,113	927	0.78%
85	121,599	2,413	2.02%
86	124,192	5,006	4.20%
87	122,473	3,287	2.76%
88	122,888	3,702	3.11%
89	114,201	-4,985	-4.18%
90	117,881	-1,305	-1.09%
91	114,251	-4,935	-4.14%
92	113,551	-5,635	-4.73%
93	113,990	-5,196	-4.36%
94	116,408	-2,778	-2.33%
95	113,497	-5,689	-4.77%
96	116,108	-3,078	-2.58%
97	115,806	-3,380	-2.84%
98	123,450	4,264	3.58%
99	123,450	4,264	3.58%

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43.   **Table 3** shows that the population deviation for each Revised Johnson/McDonald

House district is within 5 percentage points of the ideal district population and the maximum plan

deviation stayed at 9.97 percent.

44.   **Table 4** below, which was generated from Census data, reveals how the Revised

Johnson/McDonald Senate Plan, unlike the 2011 Senate Plan, is complaint with equal-population

principles. An excel file containing the information provided in Table 4 is attached as **Exhibit 11**

(manually submitted).

Table 4: Revised Johnson/McDonald Senate Plan
District Statistics

District	Population	Deviation	% Deviation
1	363,242	5,683	1.59%
2	349,846	-7,713	-2.16%
3	344,398	-13,161	-3.68%
4	362,228	4,669	1.31%
5	343,927	-13,632	-3.81%
6	351,471	-6,088	-1.70%
7	365,787	8,228	2.30%
8	352,265	-5,294	-1.48%
9	362,511	4,952	1.38%
10	353,804	-3,755	-1.05%
11	358,354	795	0.22%
12	351,202	-6,357	-1.78%
13	364,453	6,894	1.93%
14	348,181	-9,378	-2.62%
15	343,408	-14,151	-3.96%
16	351,605	-5,954	-1.67%
17	365,749	8,190	2.29%
18	371,686	14,127	3.95%
19	344,311	-13,248	-3.71%
20	360,413	2,854	0.80%
21	347,180	-10,379	-2.90%
22	351,811	-5,748	-1.61%
23	375,075	17,516	4.90%
24	375,365	17,806	4.98%
25	375,294	17,735	4.96%

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26	360,120	2,561	0.72%
27	358,255	696	0.19%
28	367,403	9,844	2.75%
29	359,303	1,744	0.49%
30	353,362	-4,197	-1.17%
31	349,889	-7,670	-2.15%
32	371,509	13,950	3.90%
33	346,041	-11,518	-3.22%

45.   **Table 4** demonstrates that the population deviation for each revised

Johnson/McDonald Senate district is within 5 percentage points of the ideal district population

and the maximum plan deviation stayed at 8.94 percent.

46.   Moreover, as noted, the Revised Johnson/McDonald Plan complies with the line-

drawing requirements of the Ohio Constitution. One of those rules is that the maximum deviation

among districts permitted under Ohio law is 10 percent. *See* Ohio Constitution, Article XI,

Section 3(B)(1) (noting that "[i]n no event shall any district contain a population of less than

ninety-five per cent nor more than one hundred five per cent of the applicable ratio of

representation.").

47.   Under Ohio law, each county with a population that is within 5 percent of the

ideal district population must be included in a single House district. *See* Ohio Constitution,

Article XI, Section 3(C)(2). There are two counties that fall under this requirement: Wayne

County and Richland County. Wayne County (District 51 in the Johnson/McDonald Plan) has a

population of 116,894 and a deviation of -1.92% percent, while Richland County (District 61 in

the Johnson/McDonald Plan) has a population of 124,936 and a deviation of 4.82% percent.

Given the difference in deviations between the two counties, any General Assembly district plan

will need to include a maximum deviation of at least 7 percent. Accommodating the other line-

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drawing requirements outlined in Section 3 is likely to push any General Assembly plan toward

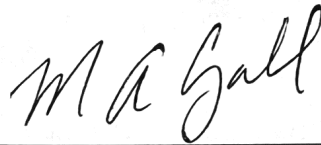the allowable 10 percent limit.

48.   Hence, to comply with all of the other line-drawing requirements outlined in the

Article XI, Sections 3–5, 7 and the proportionality requirements of Article XI, Section 6, any

General Assembly district plan will need to include a maximum deviation near or at that 10

percent limit.

CONCLUSIONS

49.   The Johnson/McDonald Plan is materially compliant with the state and federal

constitutions. The Revised Johnson McDonald Plan made some minor adjustments to further

refine the plan. The revisions were so minor that district deviations and maximum plan deviation

stayed within acceptable limits without further manipulation of the district boundaries. The 2011

Plan, given the population growth and movement during the last decade, is not compliant with the

state or federal constitutions.

50.   My opinions and conclusions as expressed in this report are to a reasonable

degree of professional and scientific certainty. My conclusions have been reached through the

proper application of data analysis, and using methodologies relied upon by experts in the field of

demography and geographic information science. My opinions will continue to be informed by

any additional material that becomes available to me. I reserve the right to update and/or

supplement my opinions if Intervenor-Plaintiffs provide additional information.

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51. I declare under penalty of perjury that the foregoing is true and correct.

Megan A. Gall

Charleston, WV

April 6, 2022

Exhibit 1

MEGAN A. GALL, PHD, GISP

833 Edgewood Drive · Charleston, WV 25302 · USA
+1 720-933-7775 · megan@blockwellconsulting.com · http://www.blockwellconsulting.com

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EDUCATION:

PhD: Political Science · University at Buffalo SUNY: Buffalo, NY   8/2013
  Dissertation: *The Political Geography and Electoral Consequences of the Slavery and Civil Rights Eras in American History*
  Thesis: *The Efficacy of 'Broken Windows' Policies in American Cities*
MS: Geographic Information Science (GIS) · University of Denver: Denver, CO 5/2007
  Thesis: *The Scope and Nature of Panhandling and the Related Crime in Denver, Colorado*
BS: Sociology · Shepherd College: Shepherdstown, WV   12/2000

SOFTWARE AND SKILLS:

Statistical & Data Viz: R stats/programming, QGIS, SQL, Tableau Public, ESRI ArcGIS/Online, Maptitude/Maptitude for Redistricting, Microsoft Excel/Access
Technology: HTML, CSS, VAN, Git, GitHub, Visual Studio Code, WordPress

EMPLOYMENT:

Principal   1/2021 - present
Blockwell Consulting, LLC: Nationwide
• Voting Rights Act (VRA) compliance and full consideration of the Gingles Preconditions including illustrative and remedial maps, racially polarized voting analyses (RPV), and demographic analyses.
    • Clients: Strumwasser & Woocher, LLP for the California Citizen's Redistricting Commission (RPV); the U.S. Department of Justice (RPV and districting); national non-profits including NAACP LDF (RPV and districting) and the Native American Rights Fund (districting); state and local non-profits (RPV and districting); and numerous local jurisdictions including cities, counties, and special jurisdictions (RPV and districting).
        • A full client list is available upon request
• Conducting quantitative analyses, research, and reporting in support of voting rights and criminal justice policy and litigation
        • A full client list is available upon request

National Data Director   6/2018 – 5/1/2021
All Voting is Local, a Leadership Conference Education Fund Campaign: Washington, DC
• Directing quantitative research to evaluate and recommend election administration policy, investigate voting rights violations, inform campaign strategy, and evaluate programmatic work
• Orchestrating multiple research projects with remote teams
• Managing large scale experiments testing efficacy of different modes of voter outreach
• Designing and implementing scalable data pipelines, analytics, and storage systems
• Building a scalable research team including recruitment, supervision, and mentorship
• Consulting with vendors, stakeholders, and research communities to further programmatic goals
• Developing program metrics and evaluation

Senior Researcher   9/2017 - 6/2018

Thurgood Marshall Institute at the NAACP Legal Defense and Educational Fund: Washington, DC
- Maintained a research portfolio focused on voting rights, redistricting, and criminal justice policy
- Conducted quantitative analyses in support of voting rights and criminal justice litigation

Social Scientist   3/2014 – 9/2017

Lawyers' Committee for Civil Rights Under Law: Washington, DC
- Investigated 35 U.S. jurisdictions in 14 states for voting rights violations resulting in 10 lawsuits:
   - modeled racially polarized voting patterns using multiple ecological inference statistical methods for over 200 electoral contests
   - created and evaluated political districting maps for 30 local and statewide jurisdictions
   - conducted spatial and aspatial demographic analyses
   - interpreted statistical results and relevant law, and provided litigation recommendations
- Developed quantitative evidence and writing legal declarations for employment, housing, and education litigation
- Research and reporting e.g. concept development, spatial and aspatial data analyses, statistical interpretation, writing, editing, and digital content creation
- Trained in-house and *pro bono* counsel on ecological inference, redistricting, GIS, and the collection and use of administrative and U.S. Census Bureau data
- Advised the national nonpartisan Election Protection Coalition on survey design, data collection, data privacy, and dissemination
- Assisted Development Team in grant writing when subject matter expertise is needed, including helping secure a $1.3M, 3-year criminal justice grant
- Consulted with external expert witnesses, stakeholders, and *pro bono* counsel on research, evaluation, and data handling

Research/Teaching Assistant   9/2009 - 5/2013

University at Buffalo: Buffalo, NY
- Wrote proposal securing $4,000 Baldy Center for Law & Social Policy Research Grant
- Conducted spatial and aspatial analyses for ongoing research
- Instructed undergraduate level class titled *Politics and Geography*

Research Associate   12/2007 - 7/2009

OMNI Institute: Denver, CO
- Supported client-based research projects e.g. proposal development, research design, data collection, data analyses, and reporting
- Integrated geospatial analyses into existing and developing research projects
- Provided company-wide geospatial analytic and cartographic support
- Designed and constructed 38 data storage systems for 24 federally funded HIV/AIDS programs throughout Colorado with cross-site evaluation capabilities
- Evaluated offender specific court systems (DUI, drug, and prostitution courts), homeless service organizations, and Hepatitis C/HIV/AIDS service programs
- Served as liaison to the Denver Office of Drug Strategy Commission

Temporary Fair Housing Researcher   5/2007 - 12/2007

Colorado Department of Local Affairs, Division of Housing: Denver, CO
- Conducted spatial and aspatial data analyses
- Assisted in the research and production of the Colorado Analysis of Impediments (AI) to Fair

Housing
- Assisted in development of the Colorado Housing Needs Assessment data systems
- Designed and created an atlas of commuters in Colorado counties

Student Research & Teaching Assistant   9/2005 - 5/2007
University of Denver: Denver, CO
- Wrote proposal securing $5,000 Public Good Scholarship Grant
- Conducted thesis research in collaboration with the National Law Enforcement and Corrections Technology Center, the Denver Police Department, the Denver Department of Health and Human Resources, and other local agencies
- Assisted with the Denver Police Department GIS Crime Analyst Needs Assessment
- Conducted various geospatial, cartographic, and research duties
- Wrote technical laboratory exercises and acted as teaching assistant for four GIS undergraduate classes, such as *Introduction to Cartographic Design* and *Introduction to GIS*

Independent Contractor: Archaeology Field/Laboratory Technician   3/2000 - 8/2005
Five state region including WV, KY, MD, OH, and VA
- Experienced with all phases of recovery with both prehistoric and historic components
- Drafted large-scale village maps, small-scale planviews, and profile maps of excavation units
- Designed and implemented on-site artifact processing and catalog system

CERTIFICATIONS:
Certified GIS Professional (GISP)   10/2014 – present
  GIS Certification Institute: Des Plaines, IL
Canadian Studies Graduate Certificate   8/2013
  University at Buffalo SUNY: Buffalo, NY
Geographic Information Systems Graduate Certificate   5/2005
  University of Denver: Denver, CO

TALKS AND SEMINARS:
"Role of the Redistricting Expert" and "Differential Privacy in the 2020 Decennial Census" seminars presented at NARF Redistricting Training for Attorneys and Experts: Virtual (May 24, 2021)
"Data in Civil Rights Litigation" seminar presented at American University Washington College of Law, Civil Rights & Public Interest class: Washington, DC (Mar. 27, 2019)
"Data in Voting Rights Litigation" seminar presented at Howard University School of Law, Contemporary Developments in Civil Rights Law class: Washington, DC (Nov. 15, 2018)
"Distance Analyses for Voting Rights Act Section 2 Vote Denial Investigations" workshop conducted three times at the Metric Geometry and Gerrymandering Group (MGGG) Austin Gerrymandering Workshop: Austin, TX (Feb. 1 and 2, 2018)
"QGIS: An open-source tool for the Civil Rights & Racial Justice Community" lecture presented at the Metric Geometry and Gerrymandering Group (MGGG) Austin Gerrymandering Workshop: Austin, TX (Feb. 1, 2018)
"Quantitative Anatomy of Section 2 Voting Rights Claim" lecture presented at the Metric Geometry and Gerrymandering Group (MGGG) 2017 Geometry of Redistricting Summer School: Medford, MA (Aug. 8, 2017)

"Introduction to GIS & Voting Rights Litigation" workshop conducted twice at the Metric Geometry and Gerrymandering Group (MGGG) 2017 Geometry of Redistricting Summer School: Medford, MA (Aug. 8 and 9, 2017)

"Introduction to mapping & QGIS" workshop conducted at the IASSIST 2017 Conference: Lawrence, KS (May 23, 2017)

"Data: How we use it, the gaps, and how we fill the gaps going forward" panelist at the 2016 Election Protection Post-Election Convening: Washington, DC (December 2, 2016)

"Put It On the Map: GIS & Online Mapping Tools" webinar presented in the Digital Tools in 2016 Series hosted by Election Protection: Washington, DC (May 5, 2016)

"Using Maps for Strategic Planning and Evaluation" (with Heather Foster) workshop conducted at the 18th Annual Faces of Leadership Conference on Service and Volunteerism: Charleston, WV (August 6 - 8, 2013)

PUBLICATIONS:
Academic Publications

Gall, Megan A. (2020). *Forthcoming – April 2022* "Making Maps: A Practitioner's Perspective". In Political Geometry. Ed. Moon Duchin, Ari Nieh, and Olivia Walch. Under contract with Birkhäuser Mathematics.

Gall, Megan A. and Jennifer L. Patin (2018). "How Laquan McDonald's Shooting Shook up the Cook County State's Attorney Election". In Atlas of the 2016 Elections. Ed. Stanley D. Brunn, Gerald R. Webster, Richard L. Morrill, Fred M. Shelley, Stephen J. Lavin and J. Clark Archer. Lanham, MD. Rowman & Littlefield Publishers, Inc.

Gall, Megan A., Joshua R. Meddaugh and Joshua J. Dyck (2011). "California's Proposition 8 (Same-Sex Marriage) and the Race Question". In Atlas of the 2008 Elections. Ed. Stanley D. Brunn, Gerald R. Webster, Richard L. Morrill, Fred M. Shelley, Stephen J. Lavin and J. Clark Archer. Lanham, MD. Rowman & Littlefield Publishers, Inc.

Meddaugh, Joshua R., Megan A. Gall and Joshua J. Dyck (2011). "Ballot Measures in the 2008 Election". In Atlas of the 2008 Elections. Ed. Stanley D. Brunn, Gerald R. Webster, Richard L. Morrill, Fred M. Shelley, Stephen J. Lavin and J. Clark Archer. Lanham, MD. Rowman & Littlefield Publishers, Inc.

Organizational Publications

Gall, Megan and Kevin Stout (2021). "Too Many Ballots of Last Resort – Disparities in Provisional Ballot Use in Ohio's 2020 Election". All Voting is Local: Leadership Conference Education Fund

Banerjee, Shruti and Megan Gall (2020). "Covid-19 Silenced Voters of Color in Wisconsin". Demos.

Gall, Megan A. and Mike Brickner (2019). "Rejected: How the Provisional Ballot System in Franklin County, Ohio Fails Voters". All Voting is Local: Leadership Conference Education Fund

Patin, Jennifer L. and Megan A. Gall (2015). "The Voting Rights Act at 50: The Story of Texas Photo ID". Lawyers' Committee for Civil Rights Under Law

Gall, Megan A. and Johnna Fandel (2008). "Men Who Have Sex with Men (MSM) Resource Mapping and Assessment Project". Proprietary report prepared for the Colorado Department of Public Health and Environment and The Council by the OMNI Institute

Data Visualizations

Gall, Megan A. and Emily Masghatti (2018). "The Fight for Fair Housing in the United States: A Retrospective of Housing Discrimination on the 50th Anniversary of the Fair Housing Act of

1969" ESRI Story Map. Last accessed in April 2018. Thurgood Marshall Institute at NAACP Legal Defense Fund

Gall, Megan A. (2018). "Death Row USA" Tableau Data Viz. Last accessed in April 2018. Thurgood Marshall Institute at NAACP Legal Defense Fund

Gall, Megan A. (2017). "Communities Against Hate: Community Resource Map" Interactive map. Last accessed in April 2018. Lawyers' Committee for Civil Rights Under Law

Maps & Spatial Contributions

Gall, Megan A. (2016). 'VRA', 'Online Voter Registration', and 'Employee Leave Time'. In: Jennifer L. Patin. "The 2016 Primaries in Review". Lawyers' Committee for Civil Rights Under Law

Gall, Megan A. (2016). 'Rural Counties of Georgia', 'Counties with Majority Black VAP', and 'VRA Section 5'. In: Jennifer L. Patin. "Voting Rights Communication Pipelines". Lawyers' Committee for Civil Rights Under Law

Gall, Megan A. (2014). 'Election Protection 2014'. In: Ari Berman. "Did Voting Restrictions Determine the Outcomes of Key Midterm Races?". The Nation

Gall, Megan A. (2014). 'Appendix B' maps. In: "Protecting Minority Voters 2014". National Commission on Voting Rights

Gall, Megan A. (2012). 'Choropleth Map of Voting on Proposition 83, 2006' and 'Sex Offender Residency Restrictions and Population Distribution'. In: Joshua J. Dyck and Annika Hagley. "Political Geography, Direct Democracy, and the Reasoning Voter: Spatial Proximity, Symbolic Politics, and Voting on California's Proposition 83". Politics & Policy **40**(2): 195-220

Gall, Megan A. (2010). 'Mendoza' and 'Latin America'. In: Julia H. Kentnor Corby. "For Members And Markets: Neoliberalism and Cooperativism in Mendoza's Wine Industry". Journal of Latin American Geography **9**(2): 27-47

Other Publications

Gall, Megan A., review of *The Road to Inequality* by Clayton Nall, *American Review of Politics*. volume 37, no. 1 (2020).

Gall, Megan A., review of *Women in Cartography* by Judith Tyner, *WAML Information Bulletin*. volume 51, no. 2 (2020).

Gall, Megan A., review of *Where are Our Boys? How Newsmaps won the Great War* by Martin Woods, *The Globe: Journal of the Australian and New Zealand Map Society Inc.* no. 80 (2016) 89-90.

Gall, Megan A. (May 17, 2016). "Letter: Ways to avoid gerrymandering". [Letter to the Editor] JConline Lafayette Journal & Courier

Patin, Jennifer L. and Megan A. Gall (February 24, 2016). "During this Election Season, Black Political Power Still Not Fully Realized". Trice Edney News Wire

CONFERENCE PARTICIPATION:

"QGIS and Democracy: Redistricting and Reapportionment with QGIS" (with John Holden and Blake Esselstyn) presented at the QGIS North America 2020 Conference: Virtual (July 20, 2020)

"Native Vote in Arizona, 2018" presented at Native Vote - Broadening the Electorate Conference: Scottsdale, AZ (Mar. 1, 2019)

"Data and Evaluation in Non-Profit Civil Rights Organizations" presented at the Bend Toward Justice Conference: Washington, DC (Dec. 4, 2018)

"The Political Geography and Electoral Consequences of the Slavery and Civil Rights Eras in

American History" (with Harvey Palmer) Paper presented at the Association of American Geographers (AAG) Conference: Boston, MA (April 5, 2017)

"District Preferences, Legislator Preferences, and Legislators' Votes" (with James C. Battista and Joshua J. Dyck) Paper presented at the State Politics and Policy Conference (SPPC): Iowa City, IA (May 25, 2013)

"Multilevel Regression and Post-Stratification to estimate State Legislative District Opinion" (with James C. Battista and Joshua J. Dyck) Paper presented at the Southern Political Science Association (SPSA): New Orleans, LA (January 14, 2012)

"The Flow of Representation: Policy Responsiveness in State Legislatures" (with James C. Battista and Joshua J. Dyck) Paper presented at the State Politics and Policy Conference (SPPC): Hanover, NH (June 3, 2011)

"The Diffusion of MMA Legalization in the American States" (with Joshua J. Dyck) Paper presented at the Midwest Political Science Association Conference (MPSA): Chicago, IL (April 1, 2011)

"District Characteristics and Legislator Traits" (with James C. Battista) Paper presented at the Midwest Political Science Association (MPSA) Conference: Chicago, IL (April 24, 2010)

"Searching For Political Culture in Canada" Paper presented at Crossing Borders Conference: Niagara Falls, NY (March 26, 2009)

"The Relationship Between Panhandling and Crime and a Public Policy Assessment" Paper presented at the Association of American Geographers (AAG) Conference: San Francisco, CA (April 18, 2007)

"Understanding Broken Windows Policing" Paper presented at the Public Good Lecture Series and Conference: Denver, CO (February 16, 2007)

AWARDS AND DISTINCTIONS:
- DCFemTech Award: DCFemTech, 2021
- Advanced Spatial Analysis Program Invitation & Funding: Population Research Institute Center for Spatially Integrated Social Science, 2011
- Department of Geography Merit Award & Prize: University of Denver, 2007
- Outstanding Woman Geoscience Student Award: Association for Women Geoscientists, 2007
- GITA Consulting Scholarship: Geospatial Information & Technology Association, 2006

SERVICE:

Member · Native American Voting Rights Coalition: United States   10/2016 - present

Co-Treasurer · West Virginia Herbal Association: WV   10/2015 - 3/2018

Board of Directors Member · William Penn House: Washington, DC   12/2014 - 12/2017

AAG GeoMentor · Maret School: Washington, DC   8/2016 - 6/2017
- 'Mapping Inequity in DC' 11th/12th grade class

GIS Analyst · American Red Cross: West Virginia Region   9/2012 - 12/2014
- Conducted spatial analyses in support of volunteer services, and resource and fiscal management

GIS Technician · Spring Heights Education Center: Spencer, WV   6/2006 - 2/2007
- Converted paper maps to GIS enabled formats and provided cartographic services

GIS Technician · Denver Dept. of Health and Human Resources and the Colorado Coalition for the Homeless: Denver, CO   6/2006 - 2/2007
- Cleaned, managed, and mapped spatial data

Exhibit 2

Manually submitted to Court.

2011 Senate Plan Shape Files

Zip file labeled: 2011_StateSenatePlan_TIGERShapeFiles.zip

Exhibit 3

Manually submitted to Court.

2011 House Plan Shape Files

Zip file labeled: 2011_StateHousePlan_TIGERShapeFiles.zip

Exhibit 4

Attached & manually submitted to Court.

Revised Johnson/McDonald House Plan

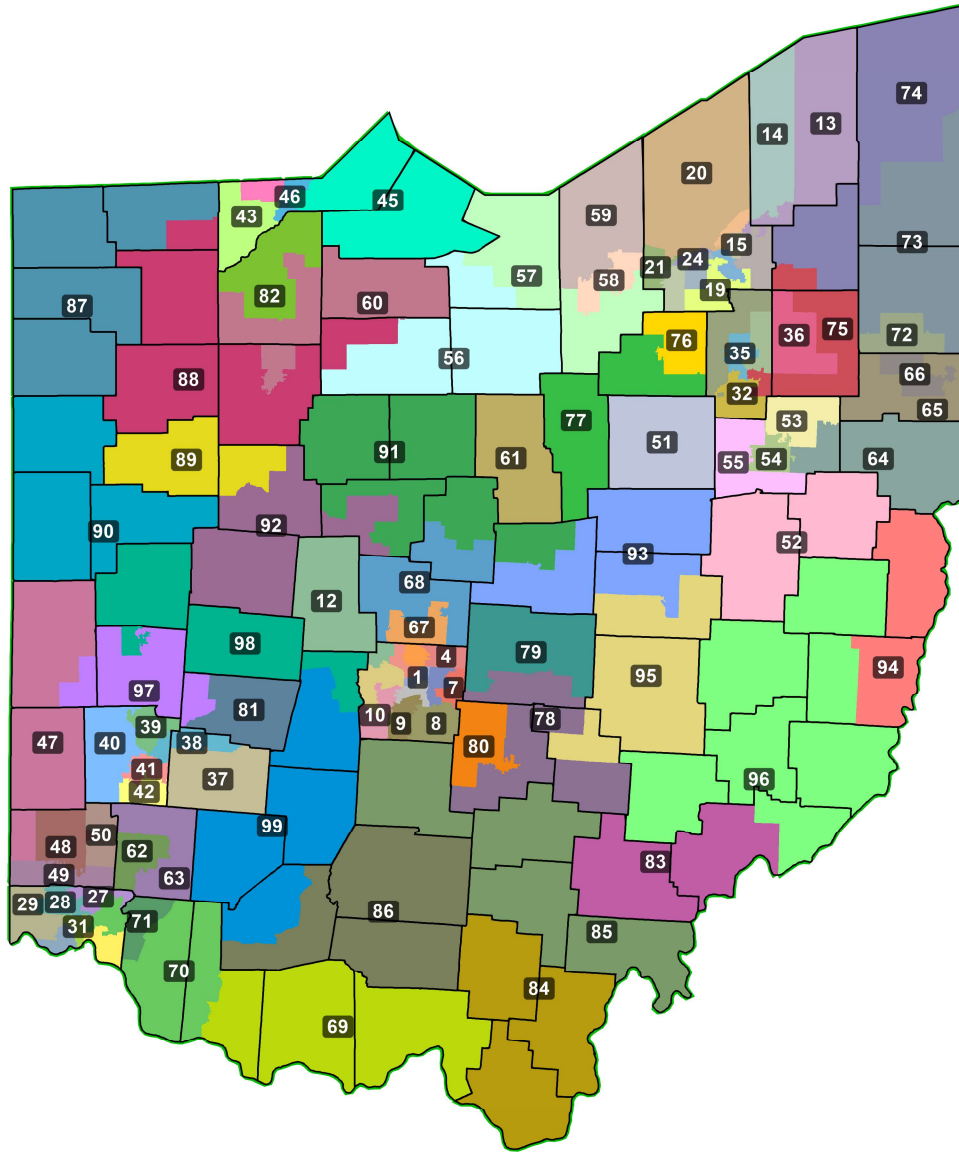File labeled: RevisedJohnsonMcDonald_StateHousePlan_Map.pdf

Exhibit 5

Manually submitted to Court.

Revised Johnson/McDonald House Plan

RevisedJohnsonMcDonald_StateHousePlan_EquivalencyFile.xlsx

Exhibit 6

Attached & manually submitted to Court.

Revised Johnson/McDonald Senate Plan

File labeled: RevisedJohnsonMcDonald_StateSenatePlan_Map.pdf
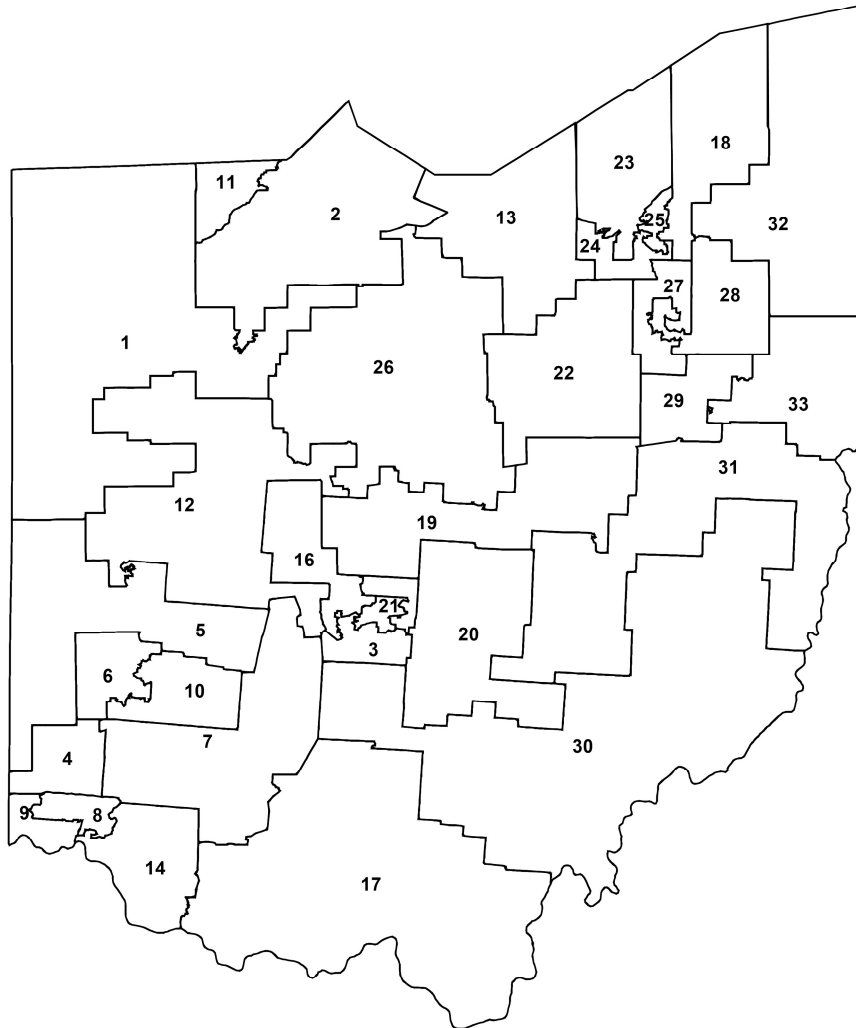
Exhibit 7

Manually submitted to Court.

Revised Johnson/McDonald Senate Plan

RevisedJohnsonMcDonald_StateSenatePlan_EquivalencyFile.xlsx

Exhibit 8

Manually submitted to Court.

Table 1 (2011 House Plan Population Deviation)

2011_HousePlan_DistrictStats_2020Demographics.xlsx

Exhibit 9

Manually submitted to Court.

Table 2 (2011 Senate Plan Population Deviation)

2011_SenatePlan_DistrictStats_2020Demographics.xlsx

Exhibit 10

Manually submitted to Court.

Table 3 (Revised Johnson/McDonald Plan House District Statistics)

RevisedJohnsonMcDonald_StateHousePlan_DistrictStats.xlsx

Exhibit 11

Manually submitted to Court.

Table 4 (Revised Johnson/McDonald Plan Senate District Statistics)

RevisedJohnsonMcDonald_StateSenatePlan_DistrictStats.xlsx